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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/684,524	10/15/2003	Jang-Kun Song	6192.0085.C1	4051

7590 11/16/2004

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EXAMINER
NGUYEN, DUNG T

ART UNIT	PAPER NUMBER
2871	

DATE MAILED: 11/16/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	10/684,524	SONG ET AL.
	Examiner	Art Unit
	Dung Nguyen	2871

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 03 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on 20 August 2004.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 52-85 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) 86-102 is/are allowed.

6)☒ Claim(s) 52-85 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Applicants ' response dated 08/20/2004 has been received and entered. Claims 52-102 are remain pending in the application.

Terminal Disclaimer

1. The terminal disclaimer filed on 08/20/2004 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of the US Patent No. 6,710,837 has been reviewed and is accepted. The terminal disclaimer has been recorded.

Claim Rejections - 35 USC § 103

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Claims 52, 55-85 stand rejected under 35U.S.C. 103(a) as being unpatentable over Koike et al., US Patent No. 5,473,455, in view of Koma, US Patent No. 5,608,556, as stated in the previous office action.

Regarding claims 52-54, 72-73 and 81-85, Koike et al. discloses a liquid crystal display (LCD) device (figures 50-51) comprising:

. a first substrate (10) with a common electrode (24) having a protrusion portion (26p) thereon;

. a second substrate (16) with a pixel electrode (21) having a depressed portion (22d) thereon;

. a liquid crystal layer (20).

The difference between the claimed invention and Koike et al. reference is that the pixel electrode having a plurality of apertures and the common electrode having a plurality of protrusions. Koma does disclose a crossing aperture can be formed on a pixel electrode (figure 8). Therefore, it would have been obvious to one skilled in the art at the time of the invention was made to employ a pixel electrode having a plurality of apertures formed thereon as shown by Koma as well as to employ a common electrode having a plurality of protrusions instead of forming depressed portions, since the selection of forming apertures and/or depresses on electrodes would be within the level of ordinary skill in the art to improve a wide viewing angle in an LCD device.

Regarding claims 55, the modification to Koike et al. disclose the claimed invention as described above except for the polarizer sandwiching the LCD cell. It would have been obvious to one skilled in the art to form a polarizer attached to an LCD cell surfaces as required for twisted nematic liquid crystal material to work.

Regarding claims 56-61, the modification Koike et al. disclose the claimed invention as described above except for compensation films. It is known in the art to form a compensation film (e.g., retarder film) on the side of an LCD cell for correcting light from the light source (e.g., ambient light or backlight) through the LCD cell. Therefore, it would have been obvious to one skilled in the art at the time of the invention was made to form a compensation films on the outer surface of an LCD cell in order to improve an LCD characteristics as mention above.

Regarding claims 62-71 and 77-80, the modification to Koike et al. disclose the claimed invention as described above except for a wedge-shaped of the protrusion . It would have been obvious to one skilled in the art at the time of the invention was made to choice the wedge-shaped for the protrusion, since Applicant has not disclosed that shape solves any stated problem or is for any particular purpose and it appears that the invention would perform equally well with the depressed-shape protrusion.

Regarding claims 74-76, the modification to Koike et al. disclose the claimed invention as described above except for the black matrix. One of ordinary skill in the art would have desired to form a black matrix films overlapping the aperture/protrusion to avoid leaking light in a display region. Therefore, it would have been obvious to one skilled in the art to form a black matrix film overlapping the Koike et al. aperture/protrusion in order to improve an LCD contrast.

4. Claims 53-54 stand rejected under 35U.S.C. 103(a) as being unpatentable over Koike et al., US Patent No. 5,473,455, in view of Koma, US Patent No. 5,608,556, further in view of Bos et al., US Patent 6,141,074, as stated in the previous office action.

Regarding claims 53 and 54, the modification to Koike et al. disclose the claimed invention as described above except for the chiral nematic liquid crystal layer having a negative dielectric anisotropy. Bos et al. do disclose a multi-domain LCD can be form with a positive or negative dielectric anisotropy liquid crystal layer (see Summary of the Invention). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to form a liquid crystal layer having a positive dielectric anisotropy or negative dielectric anisotropy because the use of one conventional material over another merely depends on the desire of the manufacturer (i.e., homogeneous or homeotropic alignment) and/or the availability and practicality of the material for the chosen manufacturing process (see Summary of the Invention). In addition, it would have been obvious to one of ordinary skill in the art at the time of the invention to use a chiral dopant as a component in the liquid crystal material in order to attain an uniform twist in a liquid crystal layer.

Response to Arguments

5. Applicant's arguments filed 08/20/2004 have been fully considered but they are not persuasive.

Applicants' arguments are as follow:

a. Regarding claims 52 and 82, Koike fails to show the protrusion formed on the common electrode and the apertures formed at the pixel electrode (response, page 3).
b. Koike does not disclose or suggest a depression of the common electrode generating a fringe field that influences alignment of the liquid crystal layer. Even if the depression is formed to generate fringe field, there is significant different between a fringe field generated by the depression and a fringe field generated by an aperture (response, page 4).
c. Koike teaches away replacing the depression with the aperture of Koma (response, pages 4-5).
d. Regarding claim 77, Koike fails to disclose the claimed "wedge-shape protrusion" (response, page 6).

The Examiner's responses are as follow:

a. Regarding claims 52 and 82, the Examiner agrees that Koike fails to show the protrusion formed on the common electrode and the apertures formed at the pixel electrode; however, as stated above, such protrusion/aperture can be formed on the common/pixel electrode, respectively, since the selection of forming apertures and/or depresses on electrodes would be within the level of ordinary skill in the art, as evidence from Koma, in order to improve a wide viewing angle in an LCD device.

b. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., a depression of the common electrode generating a fringe field that influences alignment of the liquid crystal layer) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

c. In response to applicant's argument that there is no technical validity to the assertion that the depression 22d can be replace by an aperture, the fact that applicant has recognized another advantage which would flow naturally from following the suggestion of the prior art cannot be the basis for patentability when the differences would otherwise be obvious. See *Ex parte Obiaya*, 227 USPQ 58, 60 (Bd. Pat. App. & Inter. 1985). It should be noted that liquid crystal molecules in both case would be aligned to the alignment direction; so as such replacement would take an advantage of the aperture over depression as well as both aperture and/or depression having a same function of improving viewing-angle in an LCD device.

d. Regarding claim 77, although Applicants disclose in the specification that such "wedge shapes" aperture for "... enlarge viewing angle", any differences between the claimed invention and the prior art may be expected to result in some differences in properties. The issue is whether the properties differ to such an extent that the difference is really unexpected, a prima facie case of obviousness would also exist which may also be overcome by a showing of unexpected result and the evidence relied should establish "that the differences in results are in fact unexpected and unobvious and of both statistical and practical significance." Ex parte Gelles, 22 USPQ2d 1318, 1319 (Bd. Pat. App. & Inter. 1992).

Conclusion

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dung Nguyen whose telephone number is 571-272-2297. The examiner can normally be reached on Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert H. Kim can be reached on 571-272-2293. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

DN
11/15/2004

Dung Nguyen
Primary Examiner
Art Unit 2871